Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 37246/1470	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FR2003/000966	International filing date (*day/month/year*) 27 mars 2003 (27.03.2003)	Priority date (*day/month/year*) 27 mars 2003 (27.03.2003)
International Patent Classification (IPC) or national classification and IPC C10L 1/06		
Applicant TOTALFINAELF FRANCE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 01 avril 2004 (01.04.2004)	Date of completion of this report 15 July 2005 (15.07.2005)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/FR2003/000966

I. Basis of the rep rt

1. With regard to the elements of the international application:*

☒ the international application as originally filed

☒ the description:
pages 1-15, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the claims:
pages 1-17, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-17	YES
	Claims		NO
Inventive step (IS)	Claims	1-17	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-17	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

D1: US 2 409 156;
D2: US 3 644 196.

1. Novelty

1.1 The present application fulfils the requirements set forth in PCT Article 33 because the subject matter of **claim 1** complies with the requirement of novelty defined in PCT Article 33(2).

None of the documents describes a fuel that has an octane number F4 of at least 130 and contains a first hydrocarbon base (B1) consisting of isoparaffins containing 6 to 9 carbon atoms, a second hydrocarbon base (B2) consisting of isoparaffins containing 4 or 5 carbon atoms, and at least 5% by volume of a hydrocarbon base consisting of cycloparaffins containing 6 to 8 carbon atoms, wherein the ratio R of the amounts by volume (B1+B2)/B3 is greater than 2.

1.2 **Claims 2-14** are dependent on claim 1 and, as such,

therefore also fulfil the PCT requirement of novelty.

1.3 The present application fulfils the requirements set forth in PCT Article 33 because the subject matter of **claims 15-17** complies with the requirement of novelty defined in PCT Article 33(2).

Since none of the documents describes a fuel as described in claim 1, the use of said fuel is also novel.

2. Inventive step

2.1 The present application fulfils the requirements set forth in PCT Article 33 because the subject matter of **claim 1** involve an inventive step as defined in PCT Article 33(2).

Document D1, which is considered to be the closest prior art, describes a fuel for powering a spark ignition engine, in particular, those used in aircraft (see D1, column 1, lines 1-3), which fuel has a high octane number (see D1: column 1, lines 11-22) and consists of isoparaffins containing 5 to 9 carbon atoms and isopropylbenzene: 30.9% by volume of iso-octane, 16.8% by volume of isoheptane, 33.7% by volume of isohexane, 13.6% by volume of isopentane and 5% by volume of isopropylbenzene (see D1: column 6, lines 31-42).

The subject matter of claim 1 differs from that of document D1 in that the fuel has a lower aromatic compound content and contains at least 5% by volume of a hydrocarbon base consisting of cycloparaffins

containing 6 to 8 carbon atoms, and in that the ratio R of the amounts by volume (B1+B2)/B3 is greater than 2. (*distinctive feature*).

The technical effect of this distinctive feature is to provide a novel fuel formulation that has a sufficiently high octane number F4 and a lower aromatic content (page 4, lines 5-10).

The problem that the present invention is intended to solve can therefore be considered to be that of providing an enhanced fuel that has a sufficiently high octane number F4 and a lower aromatic content.

Document D2 describes a method for preparing methylcyclopentane that can be used as a fuel blending component. Methylcyclopentane can replace those aromatic compounds and hydrocarbons in C5 that are deemed too volatile and thereby render the fuel less toxic without having to reduce the octane number (see D2, column 1, lines 1-39).

The solution proposed in claim 1 of the present application is considered to be inventive because, in a combination of D1 and D2, there would have been no reason to limit the aromatic content without seeking to limit the content of hydrocarbons in C_5.

2.2 **Claims 2-14** are dependent on claim 1 and, as such, therefore also fulfil the PCT requirements of novelty and inventive step.

2.3 The present application fulfils the requirements set forth in PCT Article 33 because the subject matter of **claims 15-17** also involves an inventive step as

defined in PCT Article 33(3).